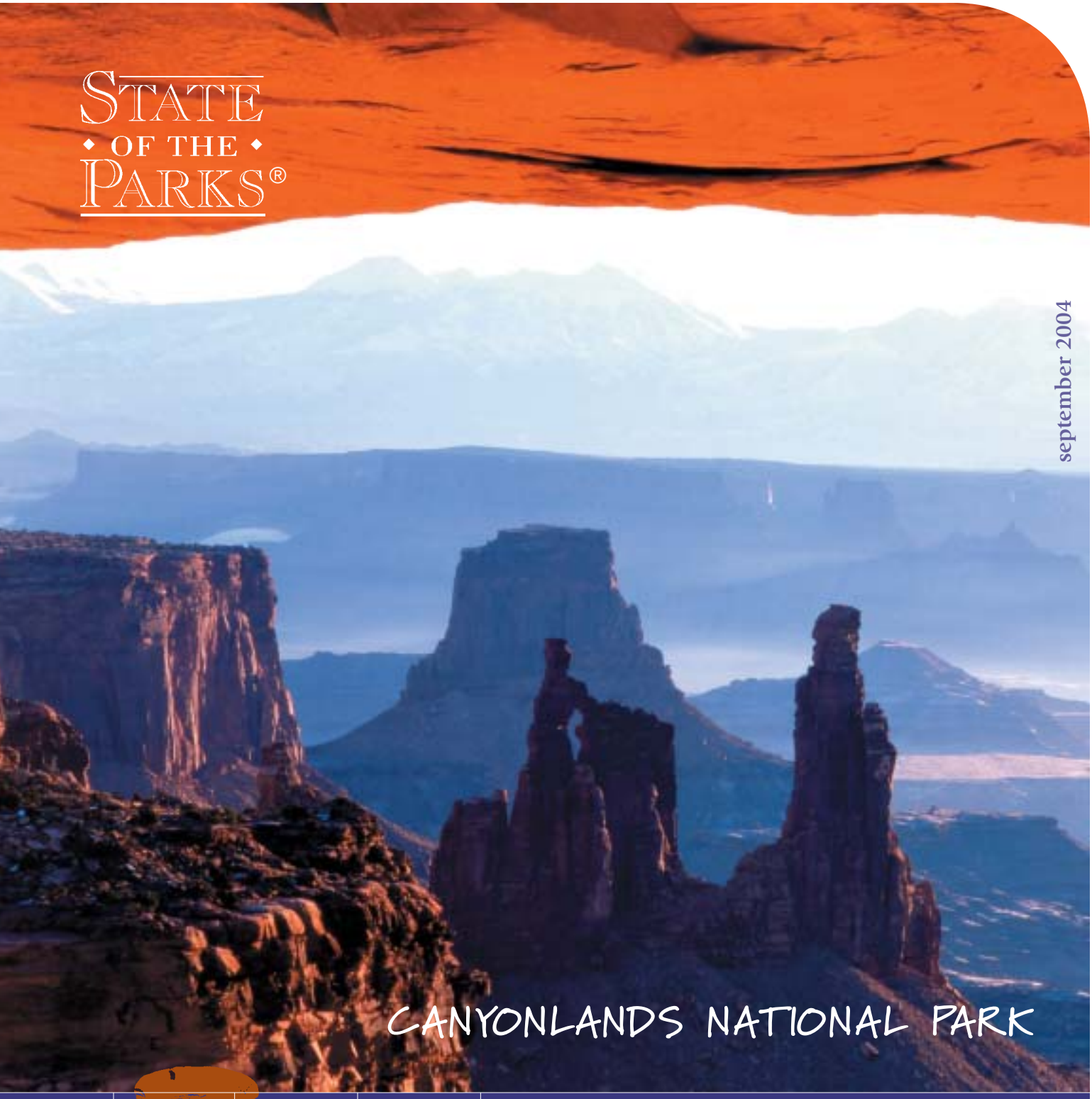
STATE OF THE PARKS®



september 2004

CANYONLANDS NATIONAL PARK

A Resource Assessment

NATIONAL PARKS CONSERVATION ASSOCIATION

STATE ◆ OF THE ◆ PARKS®

STATE OF THE PARKS® Program

More than a century ago, Congress established Yellowstone as the world's first national park. That single act was the beginning of a remarkable and ongoing effort to protect this nation's natural, historical, and cultural heritage.

Today, Americans are learning that national park designation alone cannot provide full resource protection. Many parks are compromised by development of adjacent lands, air and water pollution, invasive plants and animals, and rapid increases in motorized recreation. Park officials often lack adequate information on the status of and trends in conditions of critical resources. Only 10 percent of the National Park Service's (NPS) budget is earmarked for natural resources management, and less than 6 percent is targeted for cultural resources management. In most years, only about 7 percent of permanent park employees work in jobs directly related to park resource preservation. One consequence of the funding challenges: two-thirds of historic structures across the National Park System are in serious need of repair and maintenance.

The National Parks Conservation Association initiated the State of the Parks® program in 2000 to assess the condition of natural and cultural resources in the parks, and determine how well equipped the National Park Service is to protect the parks—its stewardship capacity. The goal is to provide information that will help policy-makers, the public, and the National Park Service improve conditions in national parks, celebrate successes as models for other parks, and ensure a lasting legacy for future generations.

For more information about the methodology and research used in preparing this report and to learn more about the State of the Parks® program, visit www.npca.org/stateoftheparks or contact: NPCA, State of the Parks® program, P.O. Box 737, Fort Collins, CO 80522; Phone: 970.493.2545; E-mail: stateoftheparks@npca.org.

Since 1919, the National Parks Conservation Association has been the leading voice of the American people in the fight to safeguard our National Park System. NPCA and its members and partners work together to protect the park system and preserve our nation's natural, historical, and cultural heritage for generations to come.

* Nearly 300,000 members
* 8 regional offices
* 35,000 activists

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COVER PHOTO: SCOTT T. SMITH

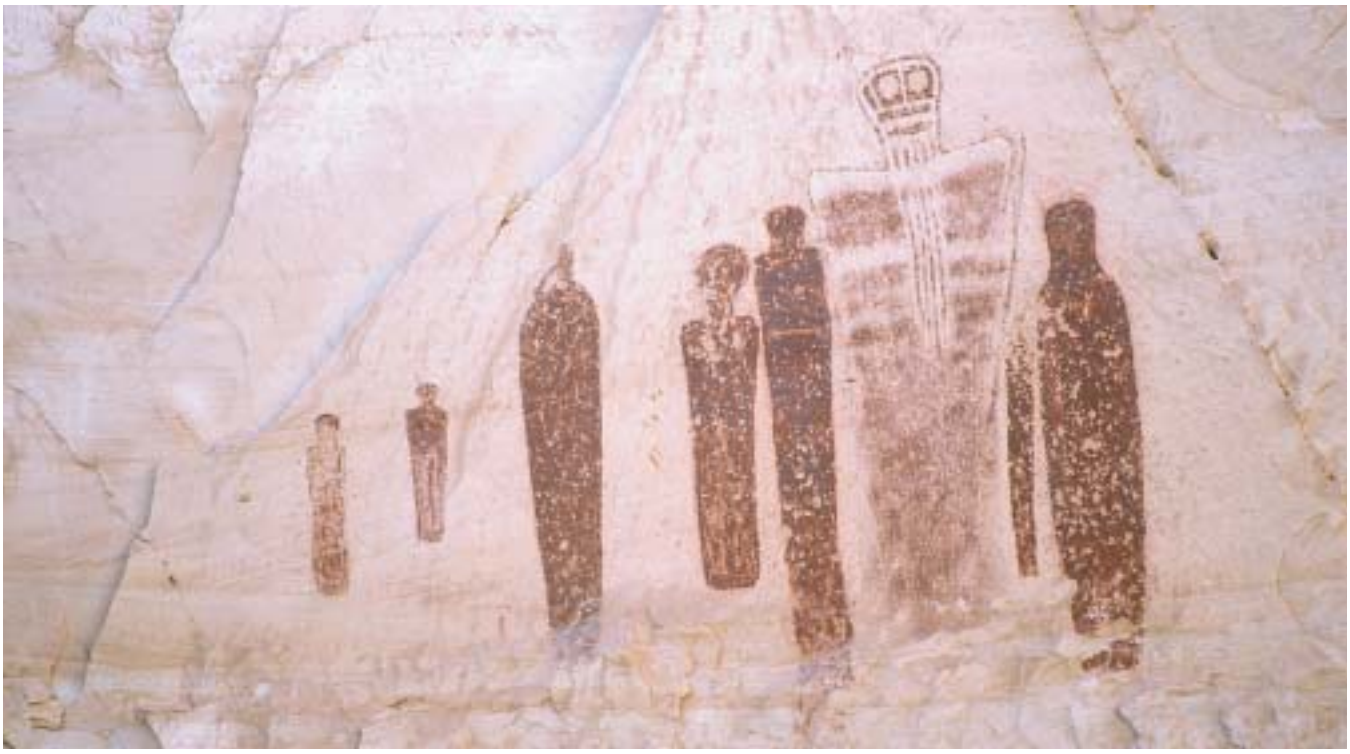
REPORT SUMMARY

CHARLES SCHELZ/NATIONAL PARK SERVICE

Located on the Colorado Plateau in southeastern Utah, Canyonlands National Park preserves 337,598 acres of diverse natural and cultural treasures. The park is home to 628 species of vascular plants, 31 fish (although most of these are non-native), ten amphibians, 25 reptiles, 218 birds, and 81 mammals. Rock art, granaries, cowboy camps, and ancient artifacts tell the stories of past human inhabitants.

Because the park is located far from major population centers and development, today's visitors experience many of the same vistas as early explorers, relatively unchanged after hundreds or even thousands of years. Dark night skies and natural soundscapes that remain largely unaffected by human development give visitors a sense of the park's wildness. Ancient petroglyphs and pictographs help visitors appreciate the people who came before them.

In spite of its isolation, the park faces challenges upholding its mandate to preserve its resources unimpaired for future generations. Non-native invasive plants have taken root throughout the park, and non-native fish outnumber natives in park waters. Oil and gas development on adjacent



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Pictographs and petroglyphs adorn the Great Gallery rock art panel in Horseshoe Canyon.

CANYONLANDS NATIONAL PARK AT A GLANCE

- Canyonlands is on the Colorado Plateau, one of North America's most biologically diverse and unique ecoregions. The plateau has the greatest number of endemic vascular plants on the continent, and it is one of the top three ecoregions in North America in terms of total number of endemic species.
- People have inhabited the region for at least 11,000 years. Paleoindians, ancestral Puebloan and Fremont cultures, ranchers, cowboys, miners, and bandits like Butch Cassidy all used the resources of today's parklands.
- The park boasts some of the darkest night skies in the National Park System and some of the lowest levels of ambient noise in the country.
- Located in sparsely populated southeast Utah, the park is nearly surrounded by other publicly owned lands. Less than 1 percent of the park is bounded by private land.
- Park visitation has increased significantly in the last two decades. Visitation in 2003 was nearly 387,000, almost seven times that of 1980.

lands threatens to mar undisturbed scenic vistas, disrupt natural soundscapes, lighten dark night skies, release chemical pollutants into the atmosphere, harm wildlife, and contaminate critical desert waters. An antiquated law could be used to construct roads through parklands, destroying fragile soil crusts and disrupting wildlife.

Funding and staffing shortages compromise cultural and natural resource protection. Seventy-one percent of identified historic structures suffer the effects of vandalism, weather, neglect, animal and pest infestation, visitation, and erosion. Archival and museum collections do not get the attention they deserve because the park must share its part-time curator with three other parks, and the park does not have money to evaluate and protect cultural landscapes or complete an ethnographic overview and assessment. Natural resources staff are unable to stem the invasion of non-native plants and reestablish native vegetation largely as a result of limited

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KEY CHALLENGES

- The park needs nearly $36 million for deferred maintenance and other unfunded projects—more than six times the park's 2004 total operating budget.
- An antiquated law, Revised Statute 2477, could allow the construction of roads that would degrade sensitive parklands. The law, enacted six years before Yellowstone was set aside and 50 years before the National Park Service was created, allowed for rights-of-way for highway construction on public lands not set aside for other public purposes. Now some Utah counties are claiming the right to build roads along streambeds, footpaths, and other old trails in the park. Turning these paths into thoroughfares for motorized traffic would degrade riparian systems, destroy fragile biological soil crusts, detrimentally affect wildlife, and chip away at the integrity of the park. Even though the 1866 law was repealed, existing rights at the time of repeal were carried forward.
- Oil and gas exploration and production outside the boundary threaten the park's renowned natural quiet, dark night skies, and unparalleled viewsheds. Early park proponents had envisioned a million-acre park, and completing the park by adding about 500,000 acres would reduce threats from these industries.
- Seventy-one percent (58 out of 82) of the park's identified historic structures are suffering from structural deterioration, vandalism, weather, neglect, animal and pest infestation, visitor use, and erosion. Without action, many of these could be lost in the next two to five years.
- Non-native plants and animals pose a major threat to Canyonlands' ecosystems. Non-native fish have taken over the park's rivers, competing for resources with native species, including several federally endangered fish. Tamarisk chokes rivers and riparian areas, and cheatgrass has displaced native vegetation throughout the park.
- As a result of insufficient funding, less than 3 percent of Canyonlands has been surveyed for archaeological sites, and park staff do not know how many sites are in the Salt Creek Archaeological District, the only archaeological district at Canyonlands that is listed in the National Register of Historic Places. Without complete knowledge of the park's archaeological resources, staff cannot properly protect sites from vandalism, weathering, and looting.

Jeeps are allowed on a number of official four-wheel drive roads in the park, but their use is inappropriate in other areas like Salt Creek. An antiquated law could open up some of these areas to vehicles.

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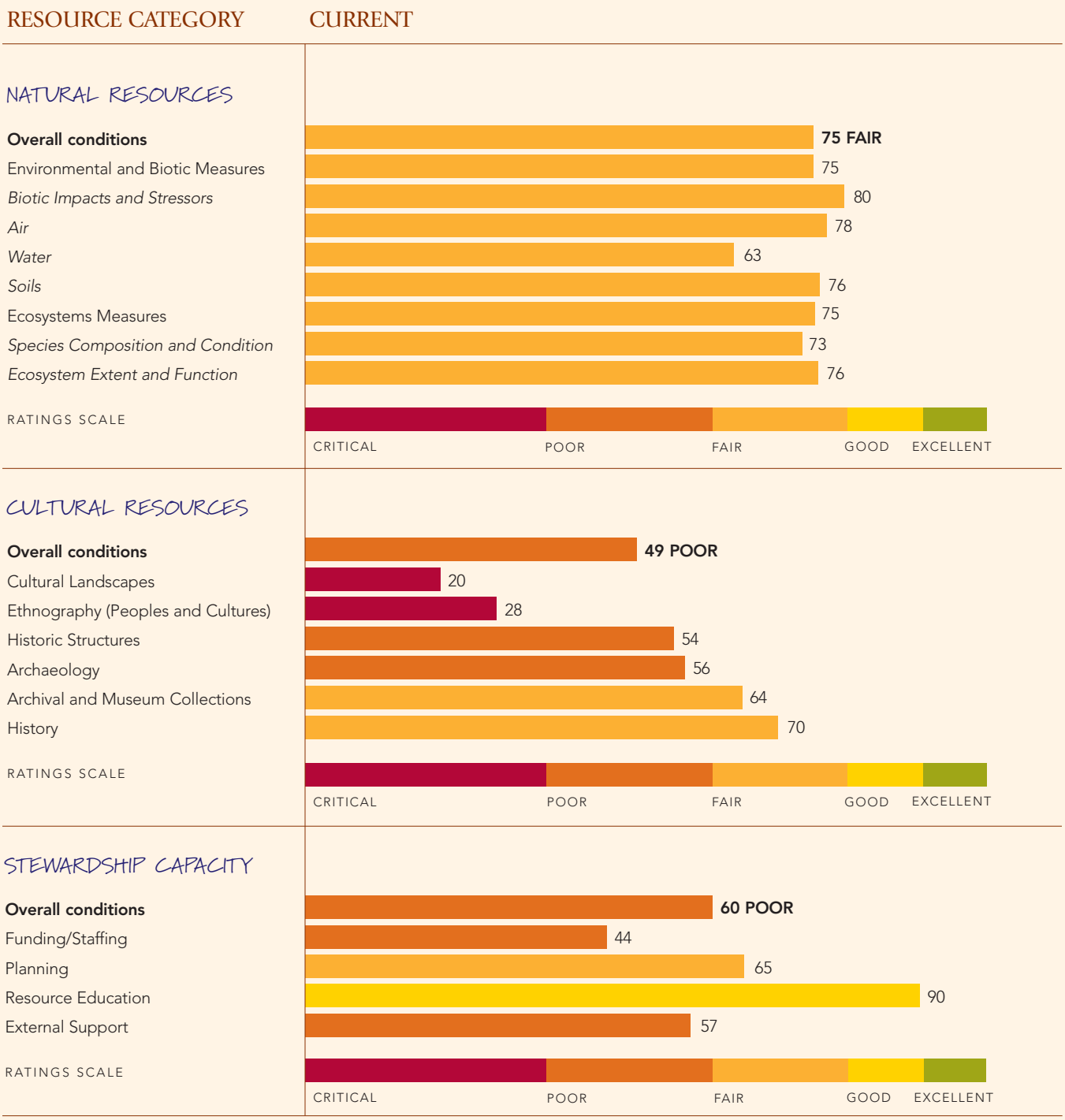
Note: When interpreting the scores for natural resource conditions it should be recognized that critical information upon which the ratings are based is not always available. The extent to which data requirements for the assessment methodology are met is called information adequacy and provides a basis for interpreting the ratings. In this assessment, 75 percent of the information requirements associated with the methods were met.



The findings in this report do not necessarily reflect past or current park management. Many factors that affect resource conditions are a result of both human and natural influences over long periods of time, in many cases before a park was established. The intent of the State of the Parks® program is to document the present status of park resources and determine which actions can be taken to protect them into the future.

KEY RECOMMENDATIONS

- Congress should enact legislation to complete and expand the boundaries of Canyonlands National Park by adding 500,000 acres—most already federal lands—to the park. The legislation should redraw the park's boundaries to follow the tops of canyon rims, preserving whole canyons, as was intended by early park proponents.
- Congress should enact a bona fide process that applies uniform federal standards for the review of Revised Statute 2477 (R.S. 2477) claims. Such a process should facilitate the recognition of validly accepted rights-of-way, while clearly rejecting unfounded and specious claims that involve national parks and other sensitive federal lands. Such legislation should also make clear that claims across national park land and other conservation units have no validity, unless there is incontrovertible evidence that a road was present, lawfully constructed and maintained, and used for highway purposes after the park was established. The Park Service should continue to monitor all R.S. 2477 road claims that cross parklands.
- Congress and the administration should appropriate funds for the U.S. Department of Energy to remove the uranium tailings pile situated in the floodplain of the Colorado River, upstream of the park near Moab.
- Congress and the administration should provide increased support for the park to aggressively attack non-native invasive species that are taking over the park's grasslands, choking rivers and riparian areas, and detrimentally affecting native species.
- Congress and the administration should provide funds for the park to regularly monitor special species like Mexican spotted owls, black bears, mountain lions, peregrine falcons, and bighorn sheep. Funds are also needed to support general research and fire history research to gain a more complete understanding of natural vegetation communities.
- Congress and the administration should provide funds for the park to complete important resource management documents and plans, including: an ethnographic overview and assessment, an archaeological overview and assessment, a cultural resource preservation plan that identifies and prioritizes sites in need of treatment, a new general management plan, an updated resource management plan, a wilderness management plan, and an air tour management plan.
- Congress and the administration should provide funds for the park to fill vacant positions and hire additional staff, including a curator to focus on Canyonlands' collections, a cultural anthropologist, more law enforcement and resource protection officers, several biological technicians, an exotic plant specialist, a geologist/physical scientist, and a fish biologist.
- Congress and the administration should allocate $4.5 million to support Canyonlands' compliance with Section 110 of the National Historic Preservation Act, which requires complete inventories and evaluations of historic and prehistoric resources. Only 3 percent of the park has been systematically inventoried for archaeological sites, and condition assessments are needed for the 1,380 identified sites.
- The National Park Service should continue to work closely with the Bureau of Land Management to ensure oil and gas development on lands surrounding the park does not affect park resources.
- Congress and the administration should provide funds for the park to complete a landscape survey and inventory, which might include a term staff appointment, so that important landscapes (historic, ethnographic, and cultural) are not inadvertently altered and precious resources lost.
- Congress and the administration should provide funds to allow staff to update historic context statements, complete condition assessments of newly identified structures, complete condition assessment updates for listed structures, and implement a new monitoring program. Stabilization, maintenance, restoration, and rehabilitation project money is also needed for structures that are in danger of suffering irrevocable damage within two to five years.
- Increased implementation of the Endangered Fish Recovery Plan is needed to help preserve threatened and endangered native fish in the Colorado and Green rivers. Dam releases that closely mimic natural river flows are also needed to protect these fish.

RESOURCE MANAGEMENT HIGHLIGHTS

- As part of a service-wide inventory and monitoring program, the Park Service has begun collecting baseline natural resources information for parks in the Northern Colorado Plateau, including Canyonlands. The information, gathered using funds provided by the Natural Resource Challenge, informs park managers about the status of the resources they protect and helps them make appropriate management decisions.
- The park's efforts to educate visitors about the importance and fragility of biological soil crusts—based around the slogan "Don't Bust the Crust"—has helped to limit inadvertent damage to this resource. Signs along trails, educational pamphlets, and the park's web site all stress the crusts' importance in Canyonlands' ecosystems, and warn visitors that a single footprint can cause damage that could take decades or more to repair.
- Park staff have initiated several education programs to help the public understand the importance of cultural resource protection. During the annual Utah Prehistory Week, children and adults are encouraged to participate in activities to learn about the park's history and the importance of resource preservation.
- Park staff have mounted a two-year effort to evaluate cultural resources along the Colorado and Green rivers. This evaluation will include prehistoric and historic resources and condition assessments that can be used to determine preservation priorities.
- The park has developed a partnership—the Canyon Country Partnership—with federal land agencies, state agencies, the governor's office, and commissioners of three counties adjacent to Canyonlands. These partners meet every other month to share information of mutual interest on projects under way and emerging issues. This has built strong relationships and opened communications among this group of decision-makers.

Cryptobiotic crusts blanket the soil throughout much of Canyonlands

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budgets, and a lack of funds prevents staff from conducting studies needed to fully understand some ecological relationships and allow them to make the best management decisions.

RATINGS

Current overall conditions of Canyonlands' known **natural resources** rated a "fair" score of 75 out of 100. Ratings were assigned through an evaluation of park research and monitoring data using NPCA's State of the Parks comprehensive assessment methodology (see Appendix). Challenges include invasion of parklands and waters by non-native species, damage to soil crusts from historic grazing and mining and visitor activities, and water quality degradation from sources outside the park.

Overall conditions of the park's known **cultural resources** rated 49 out of a possible 100, indicating "poor" conditions. A major challenge is the park's overstretched staff, though staff size has grown over the past few years. The park's cultural resources program manager and part-time curator are also responsible for resources in Arches National Park, Natural Bridges National Monument, and Hovenweep National Monument. Protection of the park's cultural landscapes has barely begun, and no work has been scheduled until at least 2011, unless Congress supplies funding. Additional archaeological work is needed for staff to gain a better understanding of the park's resources. Insufficient funding and staffing limits this work, though strides have been made through the Vanishing Treasures initiative, a program that provides funds to help protect cultural resources in 41 parks in the NPS Intermountain Region.

Canyonlands' overall **stewardship capacity**—the Park Service's ability to protect resources at this park—rated a "poor" score of 60 out of a possible 100. The park needs nearly $36 million for deferred maintenance and other unfunded projects, and two important resource plans, the general management plan and the resource management plan, are out-of-date.

PRESERVING THE MAJESTIC SANDSTONE TAPESTRY

PHIL ARMITAGE

A vast, arid landscape populated by sheer red rock canyons, impossibly delicate natural stone arches, towering spires, and rugged mesas and buttes, greets visitors to Canyonlands National Park. Early explorers were impressed and often intimidated by the region's varied topography. In 1875, John Wesley Powell marveled that "the landscape everywhere, away from the river, is of rock—cliffs of rock; tables of rock; terraces of rock; crags of rock—ten thousand strangely carved forms…." Canyonlands also harbors a rich diversity of plant and animal life and preserves evidence of prior occupation by Paleoindians, ancestral Puebloan and Fremont cultures, ranchers, miners, and others.

The idea to create a park in the canyon country of southeastern Utah was born in the 1930s, but it was not until 1964 that Canyonlands National Park was established, primarily as a result of the persistence of supporters such as Arches National Monument Superintendent Bates Wilson, Sen. Frank Moss of Utah, and Secretary of Interior Stewart Udall. Original proposals called for a large park encompassing about one million acres. Opposition to such proposals came from Gov. George Clyde of Utah, Sen. Wallace Bennett of Utah, petroleum interests, and others who were concerned that national park status would lock up commercially valuable lands, preventing activities such as mining, grazing, and hunting. After many

revisions and compromises, legislation creating Canyonlands National Park was signed by President Lyndon Johnson in 1964. The park was originally 257,640 acres, but additional land was added in 1971 to include the Maze and Horseshoe Canyon, bringing the total to 337,598.

Canyonlands is composed of four districts that are defined by the flows of the Colorado and Green rivers: Island in the Sky, the Needles, the Maze, and the rivers themselves. Between the two rivers is the Island in the Sky District, to the east of the Colorado River is the Needles District, and to the west of the Green and Colorado rivers is the Maze. The park also includes Horseshoe Canyon, a separate area that lies to the west of the Maze. This canyon is home to a spectacular panel of rock art.

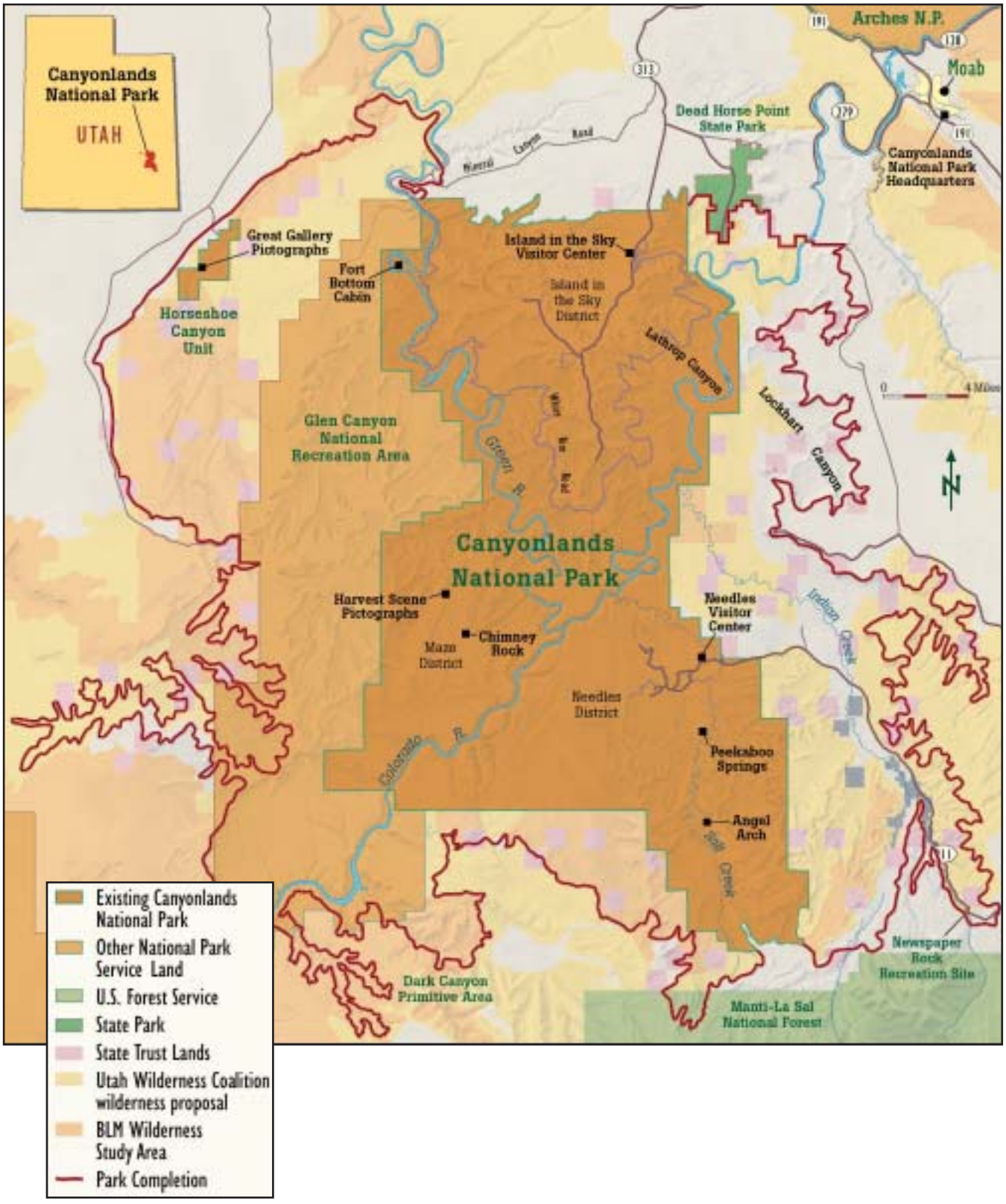
Various geologic processes and erosional forces acting over more than 1.8 billion years shaped Canyonlands country, resulting in a diverse assemblage of spires, buttes, mesas, pinnacles, arches, and other features. Reds, pinks, oranges, browns, golds, and grays color the landscape of the park—a rich palette that delights the eye. The park is located on the Colorado Plateau, the only region in the United States and Canada to feature large mountain rivers running through exposed sandstone.

Temperature extremes and a lack of water characterize the region. In summer, temperatures soar up to 116 degrees Fahrenheit, while winter lows can dip to 16 degrees below zero. Annual average precipitation is a scant 9.27 inches.

In 2003, nearly 387,000 people visited the park. This visitation is modest compared with Great Smoky Mountains or Yellowstone, but it is almost seven times the number of people who visited Canyonlands in 1980, an impressive increase. Island in the Sky is the most-visited district in the park, while the remoteness and difficulty of trails and roads in the Maze means that district receives less than 5 percent of all visitors. Those who venture into the Maze are rewarded with a true wilderness experience and opportunity for solitude.

WILLIAM KNIGHT

CANYONLANDS NATIONAL PARK



MATT KANIA

THE CANYONLANDS ASSESSMENT

WILLIAM KNIGHT

NATURAL RESOURCES—REMOTE PARK FACES CHALLENGES FROM WITHIN AND OUTSIDE BORDERS

The assessment rated the overall condition of **natural resources** at Canyonlands National Park a 75 out of 100, which ranks the park in fair condition. Prominent factors influencing the ratings are the effects of invasive non-native species on parklands and in park waters, soil crust damage from historic grazing and mining and visitor activities, and water quality degradation in the Green and Colorado rivers from sources outside the park.

PAST AND PRESENT LAND MANAGEMENT—EFFECTS OF THE PAST LINGER, AND FUTURE THREATS LOOM

Before Congress established Canyonlands in 1964, the land was grazed and mined. Ranchers used parklands as winter range from the late 1800s until 1975, and continue to use Bureau of Land Management (BLM) land adjoining the park. Grazing alters the composition and community structure of grasslands, and evidence of this has been documented in the southern part of the park. Grazing and trampling by cattle also damages soil crusts, leading to increased erosion and enhanced opportunities for invasion by

non-native plants like cheatgrass. The Needles district experienced the heaviest grazing, primarily during the 1880s and 1890s, and the ecosystem has been slow to recover. Fragile soil crusts damaged by compaction can take 250 years to recover.

The demand for uranium used in nuclear weapons fueled growth in the Canyonlands region in the 1950s, although little uranium was found in the area that is now the park. Even so, the town of Moab grew, and nearly 1,000 miles of roads were built in the area, including the White Rim road in the Island in the Sky district. Old road scars, airstrips, and mine shafts still exist as reminders of the mining days.

Canyonlands is nestled in a region of primarily publicly owned land that is managed by several agencies, including the Bureau of Land Management (BLM) and National Park Service. Less than 1 percent of the park is bounded by private land. Glen Canyon National Recreation Area is adjacent to the park's western and part of its southern boundary, while BLM land is adjacent to most of the rest of the park. The state of Utah also owns a few sections of land next to the park. Road construction and oil and gas development threaten public lands bordering the park, creating a concern for parklands as well.

Oil and gas drilling will not occur within park boundaries, but two nearby areas are possible targets for development. The first is near the northern boundary of the park, along the entrance road to the Island in the Sky district. This region has active wells and the potential for the greatest additional development. The closest well is about a mile from the park boundary, and other wells are located nearby. The second area of interest for oil and gas development is the Lockhart Basin region to the east of the park. Several exploratory wells have been drilled there in the past decade, but there are no active wells at this time.

Oil and gas development affects the park and its visitors in several ways. Nitrogen oxides released from wells are key ingredients in the formation of ground level ozone and contribute to acid deposition. Wells also degrade the park's aesthetics. The road leading to the park's main visitor center in the Island in the Sky district used to pass through minimally developed BLM land used for grazing. This land now has several individual wells and may in the near future contain an oil field with more extensive wells and pipelines. Flaring from wells could affect the park's renowned dark night skies.

OIL AND GAS DRILLING WILL NOT OCCUR WITHIN PARK BOUNDARIES, BUT TWO NEARBY AREAS ARE POSSIBLE TARGETS FOR DEVELOPMENT.

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Oil and gas development affects resources on adjacent lands and has the potential to affect park resources as well. These photos show an area near the park before and after seismic exploration using a thumper truck. The healthy soil crust has been pulverized and replaced with tire tracks. Recovery could take 250 years.

ANTIQUATED LAW THREATENS PARKLANDS

A law dating back to the Mining Act of 1866, known as Revised Statute 2477 (R.S. 2477), granted "the right-of-way for construction of highways over public lands, not reserved for public uses." The law was repealed in 1976, but existing rights at the time of repeal were carried forward, where highways had been validly constructed either before repeal or before the lands in question had been reserved as national parks or for other public purposes. This has led to major land use issues in western states, as local governments have claimed that roads exist across many federal lands, despite the clear lack of prior construction as highways. In some cases, government officials have undertaken efforts to "improve" roads by grading very rough four-wheel drive or two track roads. "Improvement" efforts and resulting motorized use have well-documented ecological impacts, and the presence of newly created roads can preclude wilderness designation of these lands.

Utah's canyon country has seen significant R.S. 2477 activity, including in Canyonlands. In the park, officials from San Juan County have entered closed sections of an off-road jeep trail along Salt Creek, cutting chains and removing signs from this off-limits area. In Lockhart Canyon, they graded a four-wheel drive road and constructed a turn-around. The effect on Salt Creek is especially critical because this riparian area is valuable habitat for the threatened Mexican spotted owl, and it also provides the only direct wildlife corridor in the park to the nearby Abajo Mountains, providing an elevation gradient that wildlife use to migrate throughout the year. The area is also valued for its cultural resources. The Salt Creek Archaeological District contains the highest recorded density of archaeological sites in the park.

The Park Service has formalized regulations that prevent motorized access along Middle Salt Creek, but San Juan County could still gain access to the area through the Quiet Title Act. The county recently filed a quiet title action in U.S. District Court alleging that the Park Service's permanent closure of the trail to motor vehicles was improper, and claiming that the trail is actually a county road under R.S. 2477. The Park Service disputes the claim.

To resolve such disputes, Congress should enact a *bona fide* process that applies uniform federal standards for the review of R.S. 2477 claims. Such a process should facilitate the recognition of validly accepted rights-of-way, while clearly rejecting unfounded and specious claims that involve national parks and other sensitive federal lands.

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Canyonlands is a relatively pristine park, in part, because it lies in an area of public land that, outside of domestic grazing, has not been extensively developed. The increased push for energy production—along with the push by local counties to create roads out of old, rough, and unused byways—threatens the character of the region and could leave Canyonlands an isolated island of protection in a region forever changed.

BIOLOGICAL SOIL CRUSTS—A LIVING TAPESTRY BLANKETS PARK'S SOILS

A complex world of tiny organisms forms an important organic layer that blankets the soils throughout much of the park. Cyanobacteria, green algae, mosses, fungi, liverworts, and lichens live intertwined in complex assemblages that help stabilize the underlying soils, prevent erosion, alter water infiltration, and benefit the germination and growth of some native plants. Crusts play an important role as nitrogen-fixers, making this critical nutrient available to nearby plants.

Soil crusts are incredibly delicate and do not hold up well to compressional disturbances—especially impacts from grazing, mining, off-road vehicles, and off-trail hiking. These activities crush the crusts, leading to far-reaching consequences. Compaction can lead to loss of lichens and a decrease in nitrogen fixation, resulting in changes in vegetation. One recent study of two regions in the park found that historical soil crust disturbance from grazing had caused a long-term decrease in nitrogen fixation by the soil crust. Increased erosion, decreased water infiltration, and invasion by non-native species like cheatgrass are other detrimental effects of soil crust loss.

Biological soil crusts in Canyonlands are still recovering from damage caused by grazing and mining that occurred before the park was established. Complete recovery could take up to 250 years.

Park staff have mounted a widespread educational campaign to inform visitors about the importance and fragility of soil crusts. As a result, visitor damage to these resources may be reduced, though continued education is needed to ensure that visitor impacts remain as minimal as possible. Soil crusts on lands outside the park are still threatened by grazing, mining, and off-road activities.

WILLIAM KNIGHT

Biological soil crusts form an important organic layer that blankets much of the soil throughout the park. The fragile crusts are easily crushed, even by a careless footstep, and can take decades to recover.

SPECIAL SPECIES—PARK'S RUGGED TERRAIN AND ISOLATION PROVIDE REFUGE, BUT THREATS REMAIN

Canyonlands harbors five federally endangered species, two federally threatened species, and numerous species of special concern.

The Mexican spotted owl, a spotted owl subspecies that lives in the southwestern United States and Mexico, was listed as threatened by the U.S. Fish

SPECIAL WILDLIFE SPECIES IN CANYONLANDS NATIONAL PARK

Federally endangered species:

- Southwest willow flycatcher (*Empidonax trailii extimus*)
- Bonytail chub (*Gila elegans*)
- Humpback chub (*G. cypha*)
- Colorado pikeminnow (*Ptychocheilus lucius*)
- Razorback sucker (*Xyrauchen texanus*)

Federally threatened species:

- Bald eagle (*Haliaeetus leucocephalus*)
- Mexican spotted owl (*Strix occidentalis lucida*)

Species of special concern:

- Northern goshawk (*Accipter gentiles*)
- Western burrowing owl (*Athene cunicularia hypugia*)
- Peregrine falcon (*Falco peregrinus*)
- Yellow-billed cuckoo (*Coccyzus americanus*)
- Lewis' woodpecker (*Melanerpes lewis*)
- Common yellowthroat (*Geothlypis trichas*)
- Southwestern river otter (*Lutra canadensis sonorae*)
- Long-eared myotis (*Myotis evotis*)
- Fringed myotis (*M. thysandodes*)
- White-tailed prairie dog (*Cynomys leucurus*)
- Bighorn sheep (*Ovis canadensis nelsonii*)
- Flannelmouth sucker (*Catostomus latipinnis*)
- Roundtail chub (*Gila robusta*)

Eleven lizard species make their homes in Canyonlands. They are well-suited to the harsh desert climate of the region.

CHARLES SCHELZ/NATIONAL PARK SERVICE

and Wildlife Service in 1993. Timber harvest across the region is cited as the primary reason for the owl's decline. Canyonlands provides critical habitat for the Mexican spotted owl, and recent surveys located 47 owls in the park. Population trends are unknown because staff have only recently begun surveys. However, research indicates that increasing visitor use of the backcountry likely affects the owls and may cause some to relocate to more remote parts of the park. Degradation of riparian areas caused by visitor use also affects the owls. In response to concerns, 22 Mexican Spotted Owl Protected Activity Centers (PACs) have been established in Canyonlands around known owl territories, and additional PACs should be established around newly discovered territories. The PACs help buffer the owls from human activities in the backcountry and will be used by park staff when evaluating potential effects of management activities.

The Colorado and Green rivers support four endangered fish species: Colorado pikeminnow, humpback chub, razorback sucker, and bonytail chub. Dams and diversions have changed these rivers' flows, creating unsuitable conditions for the endangered fish. In addition, non-native fish compete for food and other resources and may prey on the eggs and young of the endangered fish. Colorado pikeminnows used to grow to be more than six feet long and weigh more than 80 pounds; in the last 30 years, the largest Colorado pikeminnow found in the upper Colorado River basin was less than 38 inches long and weighed only about 25 pounds. The bonytail chub is the most endangered of the native fish; only a few have been captured in the last decade. The park does not play a lead role in addressing fish management and recovery. Instead, the U.S. Fish and Wildlife Service leads the Recovery Program for the Endangered Fishes of the Upper Colorado.

Bighorn sheep historically inhabited much of the western United States, but their range and numbers were greatly reduced by hunting, habitat modification primarily from overgrazing, and disease passed by domestic sheep herds. Bighorn sheep were even extirpated from most national parks, but the isolated nature of the Island in the Sky district of Canyonlands,

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Non-native tamarisk is a major problem along waterways throughout the West. Control methods are labor-intensive and expensive.

with its rugged, steep-walled canyons, sheltered a population of about 100 sheep at the time of the park's creation. These animals were used to help repopulate other parts of the park and nearby parks such as Arches National Park, Capitol Reef National Park, and Glen Canyon National Recreation Area.

Utah's bighorn sheep population is around 3,000, three times the number found in the state in 1975. About 350 sheep inhabit Canyonlands. With the successful growth of bighorn sheep populations, there comes an increased possibility of disease transmission from domestic sheep. The park's wildlife technician monitors sheep populations for disease, and the park eliminated llama use in 1996 as a precaution to prevent possible disease introduction to the bighorn herds. Other management and conservation measures may be needed in the future to further protect the sheep.

NON-NATIVE SPECIES—MAJOR THREATS TO PARK ECOSYSTEMS

A recent park newsletter states that, "non-native plants are one of the greatest threats facing Canyonlands and much of the American West." They alter entire ecosystems by displacing native plants, changing nutrient dynamics, influencing natural fire frequency, and disrupting food chains. Nearly 100 non-native plants have been found in the park, but the two causing the most damage are cheatgrass (*Bromus tectorum*) and tamarisk (*Tamarix spp.*).

Cheatgrass was introduced to North America in the late 1800s and has since spread to an estimated 98.84 million acres (40 million hectares). Cheatgrass is found throughout Canyonlands. It adapts well to many climates and takes advantage of areas disturbed by grazing, development, and other activities. It replaces native plants, decreases biodiversity, decreas-

PARK COMPLETION—TOPOGRAPHY SHOULD DICTATE BORDERS

When Canyonlands National Park was created in 1964, its size was 257,640 acres—much smaller than the one million acres park supporters had originally proposed for protection. The park was later increased to 337,598 acres. The park's current boundary is a series of straight lines that do not take into account the area's natural topography. Boundaries cut across buttes and canyons in a fashion that makes it nearly impossible for visitors to discern between parkland and other public land. On much of this other public land, especially land managed by BLM, other uses, including grazing and oil and gas development, have the potential to affect the park.

Park completion proponents, including NPCA, have proposed the addition of about half a million acres, raising the total acreage to approximately 852,000 (see map on page 9). This proposal would redraw boundaries along topographic lines and incorporate about 150,000 acres from the Park Service's Glen Canyon National Recreation Area, 34,000 acres of Utah State Trust Lands, and the remainder from the Bureau of Land Management.

Park completion would have multiple benefits: it would protect some areas currently outside the park, particularly in Lockhart Basin, from possible oil and gas development; connect the detached Horseshoe Canyon unit to the rest of the park; end grazing on areas that are now just outside the park; and create a much larger core area protected from oil and gas development, off-road vehicles, and other human impacts that threaten many of the adjoining lands.

es nitrogen availability, and increases fire frequency. Currently no feasible method exists for controlling cheatgrass, but the Moab office of the United States Geological Survey is conducting research on the plant's invasion.

Tamarisk is a common species that has invaded riparian areas throughout the western United States. In Canyonlands, it is found along the Colorado and Green rivers as well as some other drainages. It crowds out native cottonwoods and willows, and fewer birds and insects are found in tamarisk-dominated areas. Tamarisk also clogs up waterways and reduces channel width by as much as 27 percent. The plant is difficult to combat, in part, because it spreads so quickly. One estimate indicates that tamarisk can spread at a rate of more than 12 miles per year (20 kilometers/year). Park staff monitor tamarisk and have undertaken some control efforts in Horseshoe Canyon and along some small tributaries of the Colorado River. The effects of these control efforts are noticeable and include increased numbers of native cottonwood seedlings, but limited funds prevent the park from mounting a large-scale eradication effort in all infested areas.

In addition to tamarisk, the park's rivers and waterways are infested with scores of non-native fish. A survey of fish at the confluence of the Green and Colorado rivers in the heart of the park found that 95 percent of sampled fish were non-native. Some of these fish compete for resources with natives, including four federally endangered fish species, and may prey on their young.

WATER SOURCES AND QUALITY—DEGRADATION OCCURS FROM SOURCES OUTSIDE THE PARK

The Colorado and Green rivers, Salt Creek, eight intermittent streams, and springs, seeps, and potholes are important water sources for plants and animals in Canyonlands' arid environment. Riparian areas support diverse plant communities and provide a lifeline for many wildlife species. Potholes are ephemeral water sources that range from saucer-size to the size of a small pond, and may last anywhere from days to months. Fairy shrimp, frogs, toads, and other organisms often depend on these potholes for part or all of their lives. Hanging gardens found tucked into moist alcoves and beneath canyon pour-offs support many plant species, often including endemic species not found in other regions.

Mining, industrial and municipal wastewater discharges, oil and gas development, livestock grazing, recreation, and atmospheric deposition affect water quality in the park, primarily in the rivers. Most of this activity is outside the Canyonlands' boundary, but effects are felt within the park. There are concerns

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about increased salinity levels from oil and gas development and other sources outside the park, contamination from cattle grazing outside the park and cows that trespass into the park, fecal coliform contamination from visitor use, and selenium contamination from geologic formation degradation that could be natural or induced by visitor use. High turbidity levels and pH readings that fall outside established standards are also concerns.

A uranium tailings pile in the floodplain of the Colorado River, upstream of the park near Moab, presents a major threat to park waters and the larger surrounding ecosystems. The tailings pile is left from the Moab uranium mill, which operated from 1956 to 1984, and stores nearly 12 million pounds of radioactive material. An estimated 110,000 gallons of contaminated groundwater seep out of the tailings

(LEFT) These ephemeral water sources called potholes are important for a variety of desert creatures. Some spend all or parts of their lives in these small pools.

(BELOW) This uranium tailings pile is in the floodplain of the Colorado River, upstream of the park. In the event of a major flood, radioactive waste could be flushed directly into the river.

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PARK OFFERS UNSURPASSED DARK NIGHT SKIES AND NATURAL SOUNDSCAPES

Today's visitors are able to enjoy nearly the same dark night skies and natural soundscapes that people have enjoyed in the Canyonlands country for thousands of years. The park's isolation from population centers has helped to preserve these valuable aesthetic resources. Canyonlands has some of the lowest ambient noise levels in the country and some of the darkest night skies of all national parks. The hum of traffic is replaced by the whoosh of ravens' wings overhead, and cottonwood leaves rustling in the wind seem disproportionately amplified. Gazing at the night sky, visitors see all of the same stars that ancestral Puebloans viewed more than 700 years ago.

Scenic overflights threaten to disrupt the park's natural quiet and impair visitor enjoyment of the park's resources. The Federal Aviation Administration (FAA) has received about 20 applications from businesses wishing to conduct air tours over the park. These businesses are asking that about 4,000 low-level air tours be allowed each year. The Park Service and the FAA have the legal right to prohibit air tours over part or all of the park. The park must carefully study and evaluate potential effects of air tours, then craft an air tour management plan that provides strong protections for natural quiet and soundscapes and a clearly-articulated set of rules for air tour operations. Once a draft has been prepared the public will have opportunities to comment.

Additional oil and gas development on adjacent lands would result in increased noise and light pollution, marring some of the park's undeveloped viewsheds. The park must continue to work with the Bureau of Land Management to prevent such impacts to park resources.

THE PARK'S SCENIC VISTAS ARE HIGHLY VALUED BY VISITORS WHO ARE ABLE TO EXPERIENCE THE SAME UNDEVELOPED VIEWS DESCRIBED BY EXPLORERS SUCH AS POWELL, NEARLY UNCHANGED AFTER MORE THAN 125 YEARS.

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and into the Colorado River each day, and present a large-scale threat if a flood was to overwhelm the impoundment and flush the radioactive waste directly into the river. The degradation is recognized but was not well studied or understood in an environmental impact statement issued by the Nuclear Regulatory Commission. The U.S. Department of Energy is in the process of completing a more comprehensive environmental impact statement to decide whether to cap the tailings pile and leave it in place or move the waste to another location and clean up the site. Capping is less expensive, but this option would not mitigate the threat of widespread radioactive contamination in the event of a major flood.

AIR QUALITY—PARK ENJOYS GOOD OVERALL AIR QUALITY

Although Canyonlands is located in a sparsely populated, remote corner of Utah, the park is not fully protected from the effects of air pollution. Coal-burning power plants in four nearby Utah and Colorado counties emit sulfur dioxide and nitrogen oxides, and these pollutants also travel long distances from

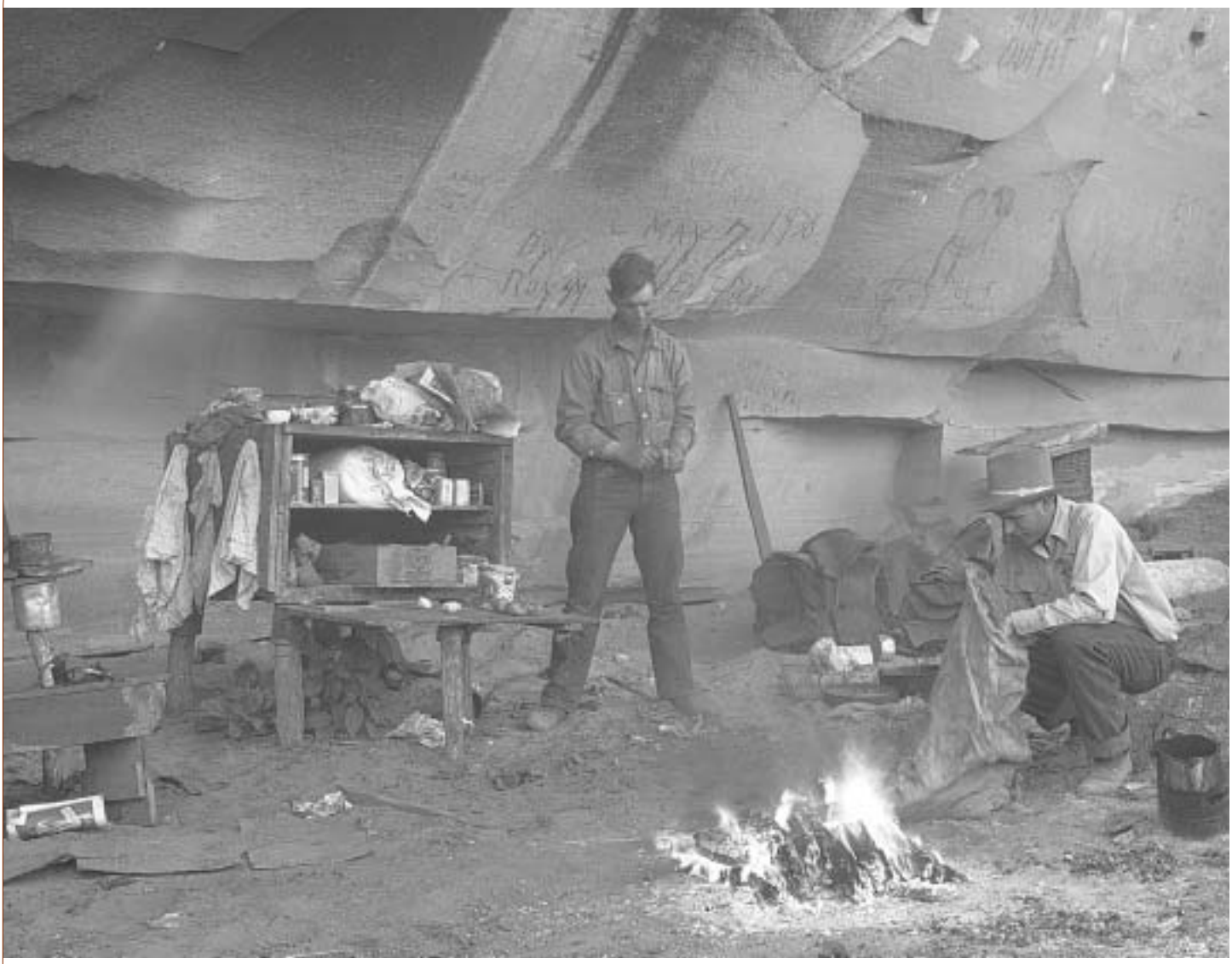
Canyonlands, along with other southeast Utah parks, has some of the darkest night skies in the National Park System. This photo, taken in nearby Arches National Park, is filled with countless stars.

sources in other states. They contribute to the formation of ground-level ozone, unnatural haze, and acid deposition on the landscape. New power plants, including one proposed for nearby Delta, Utah, will contribute to existing pollution sources. Unless tougher pollution evaluations and emissions controls are implemented, air quality in Canyonlands and other Utah parks will suffer.

Ground-level ozone is a concern for its impacts on human and plant health. Ozone is a respiratory irritant, causing wheezing, shortness of breath, and coughing. It can also aggravate asthma and cause asthma attacks. Canyonlands has levels of ozone that do not exceed federal standards that were set to protect human health, but levels are high enough to cause damage to sensitive plants. No studies have been done to document ozone effects on plants in Canyonlands, but a 1999 study done in nearby Bryce Canyon National Park, Cedar Breaks National Monument, and Zion National Park found symptoms of ozone injury on vegetation at all three parks.

The park's scenic vistas are highly valued by visitors who are able to experience the same undeveloped views described by explorers such as Powell, nearly unchanged after more than 125 years. Visibility in Canyonlands is better than in many parks such as Great Smoky Mountains and Shenandoah, but is still impaired at times by light-scattering pollutants that give the air a hazy look. Fortunately, analysis of data collected 1990–1999 shows that visibility in Canyonlands is improving on both the haziest and the clearest days, though the potential construction of additional power plants and industrial development could affect this trend. Other parks in the region show worsening visibility on the haziest days for this same time period.

Nitrogen and sulfur are deposited on the landscape in precipitation and in dry form. Increased levels of these nutrients can alter soil and water pH, affect nutrient dynamics, and potentially lead to changes in plant composition. In Canyonlands, wet deposition of nitrogen and sulfur is relatively low, though levels are still above natural conditions. Dry deposition of nitrogen has remained steady from 1995-2001, while dry deposition of sulfur has decreased slightly during that time.



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Cowboys tending livestock in the canyons established camps like this one used by Al Scorup and his crew. David Lavender took this photo in 1938 and later gave it to the park.

CULTURAL RESOURCES—BASIC INVENTORIES AND BASELINE RESEARCH NEEDED

Canyonlands scored an overall 49 out of 100 for **cultural resource** conditions, including archaeology, cultural landscapes, history, historic structures, archive and museum collections, and ethnography (peoples and cultures). This score indicates that the park's cultural resources are in "poor" condition. The scores for cultural resources are based on the results of indicator questions that reflect the National Park Service's own Cultural Resource Management Guideline and other policies related to cultural and historical resources.

The park protects a bounty of evidence of habitation dating from 11,000 years ago to the present, including archaeological artifacts, pictographs, petroglyphs, and historic structures. Funding and staffing constraints make it difficult for the park to care for these resources in the manner they deserve. However, staff size has increased from one position to four in the past few years, and resource conditions should improve now that the park has several staff to develop a programmatic approach to cultural resource management.

This red, white, and blue pictograph, located in upper Salt Creek Canyon, is called All-American Man.

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CULTURAL LANDSCAPES—CONGRESSIONAL FUNDING NEEDED FOR LANDSCAPE PRESERVATION

Cultural landscapes illustrate how people lived on the land and used its natural resources. Horseshoe Canyon was used by Paleoindians as long as 11,000 years ago, Fremont and ancestral Puebloan cultures 700 years ago, bandits like Butch Cassidy in the late 1800s, and ranchers and miners in the early to mid-1900s. Ancient pictographs and petroglyphs depicted on the walls of the Great Gallery draw visitors to the canyon. Island in the Sky was once popular with ranchers who used the area to graze cattle and sheep, and miners explored this region for uranium during the 1950s. Both grazing and mining altered the landscape, and evidence of these uses is still visible.

Canyonlands does not have a cultural landscapes program and no systematic Cultural Landscape Inventory has been completed. The Park Service Intermountain Regional Office has targeted four sites at Canyonlands to manage as cultural landscapes: Horseshoe Canyon Pictograph Panels, Island in the Sky, Lathrop Canyon Mining District, and the Salt Creek Archaeological District. However, staff suspect there are additional important ethnographic landscapes within the boundary of the park. The Park Service Intermountain Regional Office directs cultural landscape work, but no work has been scheduled at Canyonlands until at least 2010. The park is permitted to use special funding dedicated to the identification, evaluation, preservation, and management of landscapes, when such funding is available. So far, such funding has not been forthcoming, and little work has been done at Canyonlands to evaluate and protect cultural landscapes.

ETHNOGRAPHY (PEOPLES AND CULTURES)—BASIC RESEARCH REQUIRED

Before Canyonlands became a park, many groups of people lived on and used the resources of the land, including the Fremont, ancestral Puebloan, Ute, Paiute, other tribes, ranchers, Mormon settlers, and cowboys. Now that the Park Service manages the area, staff have a responsibility to foster relationships with people who were traditionally associated with the land and protect the resources that are important to them. To identify such people, parks usually conduct a formal affiliation study. Canyonlands has not conducted such a study, but staff have consulted with 39 separate tribes that are potentially affiliated. A formal study would help staff focus efforts on developing long-term relationships with these tribes. Designating

Ancestral Puebloans lived in the canyon country hundreds of years ago. Handprints and granaries remain today as evidence of their presence.

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Located in the Salt Creek Archaeological District, Kirk's Cabin was built by Lee Kirk around 1890 and was later used by cowboys tending livestock in Salt Wash. In 1998, the cabin was assessed to be in fair condition.

NATIONAL PARK SERVICE IMPACT LEVELS

MODERATE IMPACT: The structure will be significantly damaged or irretrievably lost if action is not taken within five years. The situation caused by the impact is potentially threatening to visitor or staff safety.

SEVERE IMPACT: The structure will be significantly damaged or irretrievably lost if action is not taken within two years. There is an immediate and severe threat to visitor or staff safety.

a staff member as an official liaison would also foster relationships between the park and associated tribes.

In order to identify cultural and natural resources that have special importance for associated peoples, the park needs an ethnographic overview and assessment—a systematic study of ethnographic associations and resources in the park. This research would help park and regional staff ensure that important tribal resources are not being degraded and would guide management priorities. It may also underscore a need for a full-time cultural anthropologist. To enhance ethnographic efforts at Canyonlands, the park should also collect oral histories and life histories for American Indians and other people and communities who are traditionally or historically associated with the park.

The park's general management plan and the resource management plan both need to be revised to include provisions for ethnographic study and developing tribal relationships at the park.

HISTORIC STRUCTURES—71 PERCENT OF STRUCTURES SUFFERING MODERATE TO SEVERE IMPACTS

Canyonlands' historic structures represent the history of the park through physical evidence of agriculture, ranching, and prehistoric communities. Early explorers, cowboys, miners, and others left behind inscriptions on canyon walls, campsites, pictographs, cabins, and other structures and properties. The park's historic structures also provide an opportunity to examine effects of canyon topography on land use and population and site distributions, and they reflect relationships between ancestral Puebloan and Fremont peoples.

One of the park's many management tools, the List of Classified Structures (LCS), holds information about the park's historic structures. Listed historic structures should receive special consideration in development processes so that adverse effects are avoided, and they should receive preventive maintenance and preservation treatments.

The park's LCS has 82 entries, but this number could double when structures that were previously deemed ineligible (as a result of inaccurate information) are reevaluated and updated. Ninety-four percent of listed structures are in fair or poor condition, but more than 50 percent of them have not had condition evaluations in the past six years. Eighteen structures suffer severe impacts (lost within two years) because of structural deterioration, vandalism, weather, neglect, animal and pest infestation, visitation, and erosion. Another 40 structures have moderate impacts (lost within five years). Thus, 71 percent of the park's structures will be significantly damaged or irretrievably lost if action is not taken within two to five years.

Staff have started a cultural resources inventory along the Colorado and Green river corridors. This two-year project will include studies of prehistoric and historic resources and condition assessments that can be used to determine preservation priorities. Following this effort, staff will begin a similar evaluation of the Salt Creek Archaeological District.

Although there is broad support for the preservation of both historic and prehistoric structures in the park, and there are procedures in place to protect them from park development, Historic Structure Reports, Historic Basemap, and the Historic Research Studies all need to be revised, and a systematic monitoring program needs to be implemented.

ARCHAEOLOGY—VANISHING TREASURES PROGRAM CRITICAL TO RESOURCE PROTECTION

Rock art panels and nearly 200,000 artifacts, such as pottery shards, settlement remains, and stone tools, help tell the story of the ancestral Puebloan and Fremont cultures that once inhabited the Canyon-

FORT BOTTOM CABIN—SHELTER FOR BANDITS?

According to local legend, Butch Cassidy and the Wild Bunch may have used a cabin near the Green River in the park's northwest corner. Although the story has not been corroborated, local cowboys and river travelers likely made use of the cabin until about 1940. The cabin was built in Fort Bottom in 1895 to serve as a resting place for people traveling between the river and a proposed tuberculosis sanitarium that was going to be built near the confluence of the Green and Colorado rivers. The sanitarium was never constructed. The 224-square-foot cabin was built from local materials—cottonwood logs, mud, and sandstone were used to construct the walls, roof, and chimney.

The Fort Bottom cabin is one example of the many structures at Canyonlands that are in danger of being lost. The historical significance of the cabin has not been evaluated, and though the park manages it as a historic structure, a 1998 assessment showed it to be in poor condition. Vandalism, neglect, and a lack of funding for preservation could result in the loss of this and other park structures. About $137,000 is needed for work on the cabin and the nearby Fort Bottom Ruin.

Built in 1895, the Fort Bottom Cabin served as a shelter for cowboys and river travelers, but in spite of its likely historical significance, a 1998 assessment showed the cabin to be in poor condition. This photo, taken in 1987, is housed in the park's archive.

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lands region. The official Park Service archaeology database lists about 1,380 of the park's identified sites, but less than 3 percent of the park has been systematically surveyed. Nearly 70 percent of the identified sites are in fair to good condition, but this information is outdated and the sites need to be revisited. Condition assessments are needed for hundreds of identified sites in unknown condition, and more survey work, including an archaeological overview and assessment, is required for the park to be in compliance with Section 110 of the Historic Preservation Act of 1966. This legislation requires federal agencies, like the Park Service, to inventory and evaluate their lands for cultural resources. The park has submitted a $4.5 million funding request to survey the entire park, but it is unlikely that funding will be granted.

Staff have not been able to evaluate most of the park's identified sites for significance. The Salt Creek Archaeological District is the only one in Canyonlands that is listed in the National Register of Historic Places, but staff do not know how many sites exist within the district.

In the Salt Creek Archaeological District, vandals pried most of this pictograph away from the rock face. Vandalism and looting is a problem in many parks, and Canyonlands' remoteness and inaccessibility make it difficult to police.

This pictograph panel was named the Harvest Scene because one of the figures is holding a sheaf of rice grass, an important food source for the region's prehistoric inhabitants.

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Visitation and a lack of knowledge of the resources pose the largest threats to archaeological resources in Canyonlands. Sites along the Colorado and Green rivers and near roads are most at risk of damage, vandalism, and theft. High levels of pot hunting, casual collecting, graffiti, and careless behavior when on-site have seriously degraded many of Canyonlands' sites. Visitors have stolen artifacts from most of the park's archaeological properties that are listed in the National Register of Historic Places.

The park's size, remoteness, and inaccessibility make it difficult to police, and funding constraints limit the number of law enforcement personnel the park can hire. The park currently has 13 law enforcement rangers on staff, though two of them have other primary duties. A recent Law Enforcement Needs Assessment shows that the park could use another 8.5 full-time law enforcement rangers. There are not enough rangers to prevent and monitor looting, and continued budget limitations compromise resource protection. Limited understanding of the scope of the park's cultural resources, a consequence of inadequate funding for surveys and studies, also compromises effective resource protection.

To mitigate resource threats, staff are currently focusing energies on a two-year effort to formally document known sites along the corridors and side canyons of the Colorado and Green rivers. Canyonlands has also implemented a classification system to identify and close off sensitive sites to protect them from over-visitation. Staff hope to build a geographic information systems database that contains locations, condition assessments, and documentation of archaeological resources. Signage and park literature, including the web site, educate visitors about their stewardship responsibilities, but too few staff are in the field educating people about how to treat archaeological sites.

The park is fortunate to have a permanent archaeologist and an exhibit specialist on staff, as well as a cultural resources program manager who works at Canyonlands and three other nearby parks. Many large parks do not have any archaeological staff.

VANISHING TREASURES PROGRAM MAKES ARCHAEOLOGICAL WORK POSSIBLE

The NPS Vanishing Treasures program is one of the few proactive efforts to save the cultural resources found in parks today. The program provides funds to help protect cultural resources in 41 parks in the NPS Intermountain Region. According to the Park Service, thousands of archaeological ruins are threatened with deterioration and collapse throughout these Southwestern parks. Former Park Service Director Roger Kennedy calls the situation "an undeniable crisis in care." The Vanishing Treasures program provides funds for targeted parks to document deterioration, repair the most desperate structures, and train a new generation of people in the art of preserving these sites.

Until 2002, one full-time archaeologist was shared among Canyonlands, Arches National Park, Hovenweep National Monument, and Natural Bridges National Monument. This person was also responsible for all other cultural resource management in Canyonlands. With funds from Vanishing Treasures, Canyonlands was able to hire its own archaeologist and exhibit specialist.

The program makes it possible for the park to have people in the field doing archaeology such as site documentation, stabilization, preservation, and surveys. However, Vanishing Treasures could be discontinued because of insufficient funds. Cutting this program would remove critical support for cultural resources stewardship.

There is currently no other external support for cultural resources, aside from small grants that staff compete for through the Canyonlands Natural History Association and volunteer work projects with the Sierra Club. Without the Vanishing Treasures program, archaeologically rich parks would likely not get the care they require.

THE PARK HAS A WELL-DEVELOPED ARCHIVAL PROGRAM: ADMINISTRATIVE AND HISTORIC RECORDS HAVE BEEN PROCESSED, APPROPRIATELY HOUSED, AND HAVE FINDING AIDS TO HELP RESEARCHERS.

ARCHIVAL AND MUSEUM COLLECTIONS—PARK NEEDS ITS OWN CURATOR

Canyonlands has impressive archival and museum collections that contain more than 700,000 objects documenting prehistoric and historic human activity in the area. Tools, ceramics, ornaments, and other items provide insight into the lives of Paleoindians, ancestral Puebloans, and other ancient cultures, while oral histories and historic photographs tell of more recent ranching and mining activities. A part-time curator manages these collections along with those from Arches National Park, Natural Bridges National Monument, and Hovenweep National

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This pot, part of the Dansdill Collection, was removed in the early 1960s from land that later became part of the park. In 2002, the Dansdill Collection was returned to the park.

Monument—more than 875,000 items in all. This curator also provides inventory and monitoring program consultation and advises four neighboring parks that have no curatorial expertise on staff. Increases to the park's annual budget are needed to remedy this severe staffing deficit and allow the park to hire a curator to work solely with the Canyonlands' collections. A full-time curator for Canyonlands could work to reduce the catalog backlog, complete condition assessments on the collection, acquire and process new objects, process the park's resource management records, and work with interpretation staff to develop new exhibits.

Forty-eight percent of the park's museum and archival items have been cataloged, but about 300,000 specimens of fish larvae have not yet been cataloged. The park has a well-developed archival program: administrative and historic records have been processed, appropriately housed, and have finding aids to help researchers. The collection plans are up-to-date, and 77 percent of the standards listed in the *NPS Checklist for Preservation and Protection of Museum Collections* have been met. The archival storage building is in need of a climate control system to regulate temperature and humidity, but the museum storage building meets appropriate standards.

HISTORY—ADMINISTRATIVE HISTORY PROJECT UNDER WAY

The history of Canyonlands National Park is wrapped up in land use, and the park has a historic resource study that covers this and other important pieces of the past. Still, a historic resource study of mining in the area is needed. The park has contracted a historian from Arizona State University to write an administrative history of the park that is due in June 2005. After the work is completed, the park staff will have a good understanding of the historic context in which to place resources as they make important management decisions. The park does not have a historian, but makes limited use of the service of a Park Service regional historian.

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Ancestral Puebloans left behind granaries, rock art, and other evidence of their lives in the canyon country.

HOW TO PRESERVE YOUR HERITAGE

- **Cultural sites and artifacts are irreplaceable.** Please observe the following guidelines when visiting sites in Canyonlands and other national parks.
- **View sites from a distance.** Ancient walls crumble easily. Never enter structures or human-made enclosures at Canyonlands, as your movements may damage the foundation or other structural elements.
- **Leave things where they lie.** Resist the temptation to collect artifacts and allow future visitors the joy of discovery. Also, archaeologists can determine a great deal from the presence and location of artifacts.
- **Enjoy rock art with your eyes only.** Pictographs and petroglyphs should not be touched as the oils in human skin will destroy them. Never spoil cultural sites or natural features with modern graffiti.

—NPS web site

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Volunteers and Student Conservation Association interns assist with resource protection and visitor services.

STEWARDSHIP CAPACITY— UNFUNDED PRIORITY PROJECT LIST LOOMS LARGE

Overall, the park's **stewardship capacity** rated a "poor" score of 60 out of 100. The rating was calculated by averaging the four component scores of stewardship capacity, weighting the funding and staffing component at 40 percent of the overall score to reflect its importance.

FUNDING & STAFFING— NEARLY $36 MILLION NEEDED FOR UNFUNDED PROJECTS

The most significant factor affecting a park's ability to protect its resources is the funding a park receives from Congress and other sources. In 2004, Canyonlands National Park had an annual operating budget of $5.2 million. This supports a full-time staff of 102 employees, up from 71 employees in 1990. However, as a result of unfunded congressionally mandated employee pay increases, the park cut back basic maintenance services for summer 2004.

The park's 1999 business plan indicated that an operating budget increase of $1.969 million was needed to meet basic mandates and provide a satisfactory level of visitor services. The park needs nearly $36 million for deferred maintenance projects and 171 identified unfunded projects. More than $4.2 million are needed for cultural resource projects, including a park-wide cultural resource inventory, ethnographic overview, and condition reviews for high priority structures identified on the List of Classified Structures.

In addition, the park needs $600,000 for research, monitoring, and restoration work of Salt Creek Canyon. It is the most extensive riparian zone in the park outside of the Green and Colorado rivers, making it an important habitat for flora and fauna, and it contains a wealth of archaeological resources. For many years, off-road vehicles were allowed to drive up the canyon, but the park has now closed the creek because of concerns over resource damage. Nearby San Juan County has challenged this closure.

Additional money is needed for other high priority natural resource projects: monitoring the effects of backcountry campsites, monitoring peregrine falcons, determining critical habitat needs for the Mexican spotted owl, controlling non-native vegetation at high priority sites, monitoring desert bighorn sheep, and determining the conservation status of bats in Canyonlands and surrounding parks. Currently no funds are available for these important projects.

Visitation to the park is increasing. In 2003, nearly 387,000 people visited Canyonlands to hike, bike, camp, and participate in a host of activities. This is almost seven times the number who visited in 1980.

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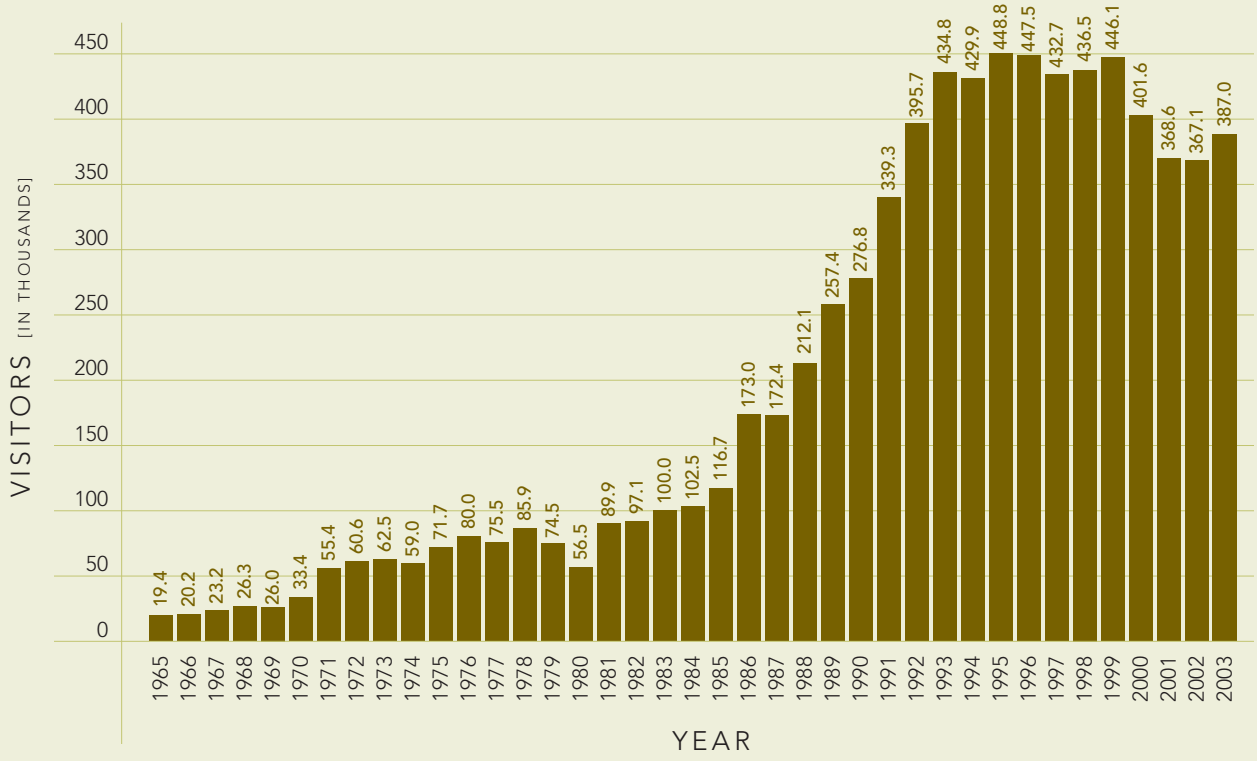
HISTORY OF TOTAL ANNUAL VISITS FOR CANYONLANDS NATIONAL PARK



WHAT YOU CAN DO TO HELP

- **Support or become a member of groups helping to protect the park:** Canyonlands Natural History Association (www.cnha.org/site/index.cfm), NPCA (www.npca.org/support_npca/), and other regional organizations.
- **Volunteer in the Parks.** Many parks are looking for dedicated people who can lend a helping hand. To learn about opportunities at Canyonlands National Park, contact the park at 435.719.2313.
- **Become an NPCA activist and learn about legislative initiatives affecting parks.** When you join our activist network, you will receive *Park Lines*, a biweekly electronic newsletter with the latest park news and ways you can help. Join by visiting www.npca.org/takeaction.

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In addition to project funds, the park needs more staff to care for both cultural and natural resources and to provide visitor services. Mandatory pay increases and increasing personnel costs have not been covered by commensurate operating budget increases, making it difficult for the park to employ the number of people needed to fully care for park resources and serve park visitors. Vacant positions should be filled and new staff should be hired, including a curator to focus on Canyonlands' collections, a cultural anthropologist, more law enforcement and resource protection officers, several biological technicians, an exotic plant specialist, a geologist/physical scientist, and a fish biologist. To illustrate current shortfalls, a recent Law Enforcement Needs Assessment showed that the park could use another 8.5 full-time positions to supplement the current staff of 13 law enforcement rangers.

To help address resource management needs, the park pioneered a notable program called the Canyon Country Conservation Corps. The program began six years ago and is funded through park entrance fees. Each summer the park hires ten to 15 local students who are between the ages of 17 and 22 to work on a variety of park resource projects. Students return to their local communities with a better understanding of the park and resource stewardship practices.

PLANNING—IMPORTANT PLANS OUTDATED

Advanced planning is an essential element of resource protection and is generally dictated by available funding. Canyonlands has been able to secure funding so that most of its specific planning documents are generally current and help guide management goals. The park has plans for water resources, interpretation, backcountry resources, museum collections, and at least one species of special concern, the Mexican spotted owl. Support from the congressionally funded Natural Resource Challenge is making an inventory and monitoring plan possible, and this will be valuable to the long-range stewardship of resources. An exotic plants plan and a river management plan are currently in progress, and these will also be important contributors to resource stewardship.

Missing, but needed, is an ethnographic overview and assessment that would provide the park with baseline information about traditionally associated people and the resources that are important to them. This would help park managers create an ethnography program to meet Park Service standards and serve people who have cultural connections to the park.

Like many parks, the master plan that guides overall general direction for resource stewardship, the general management plan, is more than 20 years old and is rarely consulted any longer. Likewise, the important resource management plan is dated, and today can provide direction only on some management decisions.

RESOURCE EDUCATION— STAFF PROVIDES EXCELLENT VISITOR EDUCATION

For a park to successfully protect its resources, communication with the public is essential. In fiscal year 2003, park staff made nearly 420,000 visitor contacts—about 385,000 contacts were in the park's five visitor centers or contact stations, and more than 13,000 contacts were formal walks and talks given by rangers. Park staff also educated nearly 7,200 southeastern Utah students through the Canyon Country Outdoor Program. Students in this region of the state have 24 classroom and in-park visits directed by a park curriculum that builds on the state's science education objectives with presentations by park rangers.

A staff of 11 full-time employees accomplished these interpretive activities with an operating budget of just $712,139, less than 14 percent of the park's total operating budget. All of the park's interpretive activities are guided by a new long-range interpretive plan for the park.

To better serve park visitors, the park needs a new visitor center in the Island in the Sky district, with additional funds from Congress to staff and support it. The doublewide modular structure there today was built as a temporary contact station in 1987, when visitation to the district was about 80,000 people. Last year, more than 244,000 people visited this high-elevation portion of the park. The temporary structure should be replaced by a new visitor center.

EXTERNAL SUPPORT

Volunteers, partnerships, legislative support, and communication with local communities have all been critical aspects for the protection of resources in Canyonlands National Park. Despite its remote location, the park has been able to recruit volunteers who have helped with resource protection. In 2003, volunteers provided the park with 16,024 hours of service. Most of these hours were spent providing interpretation services and assisting with resource management projects.

The park also has developed a partnership—the Canyon Country Partnership—with federal land agencies, state agencies, the governor's office, and commissioners of three counties adjacent to Canyonlands. These partners meet every other month to share information of mutual interest on current projects and emerging issues. This has built strong relationships and open communications among this group of decision-makers.

The park also receives support from the Grand Canyon Trust, Southern Utah Wilderness Alliance, Sierra Club, The Nature Conservancy, NPCA, and various four-wheel drive clubs. These groups speak out about resource protection issues as they arise.

Congressional support has benefited the park at critical times. In 1964, Utah Sen. Frank Moss played a key role in getting the park established. Sen. Jake Garn helped to secure funding in the mid-1980s for maintenance buildings, housing, and a visitor center in the central Needles District of the park. Today Sen. Robert Bennett has helped to secure funds for park projects throughout this region of Utah.

In fiscal year 2003, park staff made nearly 420,000 visitor contacts. More than 13,000 of these contacts were made through formal ranger-led walks and talks.

NATIONAL PARK SERVICE

APPENDIX: METHODOLOGY

To determine the condition of known natural and cultural resources at Canyonlands National Park and other national parks, the National Parks Conservation Association developed a resource assessment and ratings process. It examines current resource conditions, evaluates the park staff's capacity to fully care for the resources, and forecasts likely conditions over the next ten years. The assessment methodology can be found online at NPCA's State of the Parks® web site (www.npca.org/stateoftheparks/).

Researchers gather available information from a variety of research, monitoring, and background sources in a number of critical categories. The natural resources rating reflects assessment of more than 120 discrete elements associated with environmental quality, biotic health, and ecosystem integrity. Environmental quality and biotic health measures (EBM) address air, water, soils, and climatic change conditions as well as their influences and human-related influences on plants and animals. Ecosystems Measures (ESM) address the extent, species composition, and interrelationships of organisms with each other and the physical environment for indicator, representative, or all terrestrial and freshwater communities.

The scores for cultural resources are determined based on the results of indicator questions that reflect the National Park Service's own Cultural Resource Management Guideline and other Park Service resource management policies.

Stewardship capacity refers to the Park Service's ability to protect park resources. Information is collected and circulated to park staff and peer reviewers for analysis. An overall average based on a 100-point scale is used to determine the ratings based on numerous benchmarks. An overall score is obtained by weighting the funding and staffing component at 40 percent, recognizing its critical importance, and the remaining three elements at 20 percent each.

For this report, researchers collected data and prepared a paper that summarized the results. The draft underwent peer review and was also reviewed by staff at Canyonlands National Park.

NPCA's State of the Parks program represents the first time that such assessments have been undertaken for units of the National Park System. Comments on the program's methods are welcome.

CHARLES SCHELZ/NATIONAL PARK SERVICE

Cactus blooms add splashes of color to the landscape.

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For more information about the
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Please visit www.npca.org/stateoftheparks/ to view these reports and to learn more about the State of the Parks® Program.

NPCA thanks the staff at Canyonlands National Park who reviewed the factual accuracy of information used in this report. Special thanks go to Chris Goetze, Canyonlands' cultural resource program manager. We also thank peer reviewers for their valuable comments and suggestions.

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